WHAT IS CLAIMED IS:

1. An optical encoder comprising:

a light emitting unit that emits parallel light onto a plurality of marks that are arranged on an object at a predetermined interval in a moving direction of the object; and

a light receiving unit that receives light modulated by the marks.

2. The optical encoder according to claim 1, wherein the light emitting unit includes

a light source; and

a collimating lens that collimates light emitted from the light source to generate the parallel light.

3. The optical encoder according to claim 1, wherein the light receiving unit receives light passing through the marks as the light modulated by the marks.

4. The optical encoder according to claim 1, wherein the light receiving unit receives light reflected from the marks as the light modulated by the marks.

5. The optical encoder according to claim 1, wherein the object is a belt supported by a plurality of supporting members, and the belt is moved by a motor.

6. The optical encoder according to claim 1, wherein the object is a rotor that is turned by a motor.

7. The optical encoder according to claim 1, wherein

a width, along the moving direction of the object, of the light emitted from the light emitting unit is shorter than the predetermined interval.

8. The optical encoder according to claim 1, wherein

a cross-sectional shape of the light emitted from the light emitting unit has a longer width in a direction perpendicular to the moving direction of the object.

9. The optical encoder according to claim 1, wherein

the light emitting unit emits a plurality of beams so that an interval between the beams at a surface of the object is an integer times the predetermined interval.

10. The optical encoder according to claim 9, wherein the light emitting unit includes

a light source;

a collimating lens that collimates light emitted from the light source to generate the parallel light; and

a slit member that split the parallel light into the plurality of beams.

11. The optical encoder according to claim 1, wherein

the light emitting unit emits light in a direction perpendicular to the moving direction of the object.

12. The optical encoder according to claim 1, wherein

the light emitting unit emits light in a direction normal to a surface of the object on which the marks are arranged.

13. The optical encoder according to claim 1, further comprising a splitter that transmits the light emitted from the light emitting unit to the marks, and that guides light reflected from the marks to the light receiving unit.

14. An optical encoder comprising:

a light emitting unit that emits light onto a plurality of marks that are arranged on an object at a predetermined interval in a moving direction of the object;

a light receiving unit that receives light modulated by the marks;

a slit member that has an aperture whose width is approximately equal to the predetermined interval, the light emitted from the light emitting unit passing through the aperture;

a gap holding member that holds the slit member so that there is substantially a constant gap between the slit member and the marks; and

a pressing member to elastically press the slit member against the marks through the gap holding member.

15. The optical encoder according to claim 14, wherein the light receiving unit receives light passing through the marks as the light modulated by the marks.

16. The optical encoder according to claim 14, wherein the light receiving unit receives light reflected from the marks as the light modulated by the marks.

17. The optical encoder according to claim 14, wherein the object is a belt supported by a plurality of supporting members, and the belt is moved by a motor.

18. The optical encoder according to claim 14, wherein the object is a rotor that is turned by a motor.

19. The optical encoder according to claim 14, further comprising a casing that houses the light emitting unit and the light receiving unit, wherein the pressing member is disposed between the slit member and the casing.

20. The optical encoder according to claim 14, further comprising a casing that houses the light emitting unit and the light receiving unit, wherein

the slit member is disposed on the casing, and

the pressing member is disposed between the casing and a support base and presses the casing against the marks through the slit member and the gap holding member.

21. The optical encoder according to claim 14, further comprising a casing that houses the light emitting unit and the light receiving unit, and that is movably supported around a position at which the light reaches a surface of the object.

22. The optical encoder according to claim 14, wherein

the light emitting unit emits light in a direction perpendicular to the moving direction of the object.

23. The optical encoder according to claim 14, wherein the light emitting unit includes

a light source; and

a collimating lens that collimates light emitted from the light source to generate the parallel light.

24. The optical encoder according to claim 14, wherein the slit member, the gap holding member, and the pressing member are integrated as a spring member having the aperture.

25. The optical encoder according to claim 24, wherein the spring member is a sheet spring.

26. The optical encoder according to claim 24, wherein the spring member is a resin film.

27. The optical encoder according to claim 26, wherein the resin film includes

a transparent film; and

a metal film that is formed on the transparent film and that has the aperture.

28. The optical encoder according to claim 26, wherein the resin film has an aperture pattern formed by a first area and a second area, the first area is made of a material that absorbs the light emitted from the light emitting unit, and the second area is made of a material that transmits the light.

29. The optical encoder according to claim 14, further comprising a lubricating unit that lubricates a surface, which faces toward the gap holding member, of the object.

30. The optical encoder according to claim 29, wherein the lubricating unit applies a lubricant on the surface of the object.

31. The optical encoder according to claim 14, wherein the gap holding member includes a rotor that comes in contact with the marks and is turned with movement of the object.

32. The optical encoder according to claim 14, wherein the slit member has a plurality of apertures that are arranged in the moving direction of the object.

33. The optical encoder according to claim 14, further comprising a cleaning member that cleans the marks.

34. A driver for a motor to move an object, comprising:

an optical encoder that includes

a light emitting unit that emits parallel light onto a plurality of marks that are arranged on the object at a predetermined interval in a moving direction of the object; and

a light receiving unit that receives light modulated by the marks; and

a motor controller that controls the motor based on a signal output from the light receiving unit.

35. A driver for a motor to move an object, comprising:

an optical encoder that includes

a light emitting unit that emits light onto a plurality of marks that are arranged on an object at a predetermined interval in a moving direction of the object;

a light receiving unit that receives light modulated by the marks;

a slit member that has an aperture whose width is approximately equal to the predetermined interval, the light emitted from the light emitting unit passing through the aperture;

a gap holding member that holds the slit member so that there is substantially a constant gap between the slit member and the marks; and

a pressing member to elastically press the slit member against the marks through the gap holding member; and

a motor controller that controls the motor based on a signal output from the light receiving unit.

36. An image forming apparatus, comprising:

an object on which a plurality of marks are arranged at a predetermined interval in a moving direction of the object;

a motor to move the object;

an optical encoder that includes

a light emitting unit that emits parallel light onto the

marks; and

a light receiving unit that receives light modulated by the marks; and

a motor controller that controls the motor based on a signal output from the light receiving unit.

37. An image forming apparatus, comprising:

an object on which a plurality of marks are arranged at a predetermined interval in a moving direction of the object;

a motor to move the object;

an optical encoder that includes

a light emitting unit that emits light onto the marks;

a light receiving unit that receives light modulated by the marks;

a slit member that has an aperture whose width is approximately equal to the predetermined interval, the light emitted from the light emitting unit passing through the aperture;

a gap holding member that holds the slit member so that there is substantially a constant gap between the slit member and the marks; and

a pressing member to elastically press the slit member against the marks through the gap holding member; and

a motor controller that controls the motor based on a signal output from the light receiving unit.

38. A method of driving a motor to move an object on which a plurality of marks are arranged at a predetermined interval in a moving direction of the object, the method comprising:

emitting parallel light onto the marks;

converting light modulated by the marks into an electric signal; and

controlling the motor based on the electric signal.

39. A method of driving a motor to move an object on which a plurality of marks are arranged at a predetermined interval in a moving direction of the object, the method comprising:

pressing a slit member against the marks so that there is substantially a constant gap between the slit member and the marks, the slit member having an aperture;

emitting parallel light onto the marks so that the light passes through the aperture;

converting light modulated by the marks into an electric signal; and

controlling the motor based on the electric signal.